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ABSTRACT

Data from undergraduates' ratings of the frequency and acceptability of selected syntactic constructions are analyzed for linguistically defined sets. Mean ratings of frequency and acceptability as well as the results from a cluster analysis of each set of sentences are given for seven target contrasts: active/passive, may/might, perfect/past, indicative/subjunctive/should, relative positions of adverbials, types of negative contractions, and forms of ellipsis. Detailed results are tabulated for each set of constructions investigated, with amplifying data included as appendices. (AA)

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EXPERIMENTS ON JUDGEMENTS OF SYNTACTIC ACCEPTABILITY AND FREQUENCY: REPORT 2

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INTRODUCTION

Report 1 discussed intra-subject consistency in judgements of acceptability and frequency of syntactic constructions. This report discusses the linguistic aspects of the results. For the purpose of the analysis the sentences are divided into eight groups, each group dealing with a particular type of syntactic variation. A group consists of two or more numbered sets, each with two pairs of sentences: an a-b pair and a c-d pair. The c-d pairs repeat the syntactic variation in the corresponding a-b pairs, but their lexical content is different. The subjects were asked to judge the pairs of sentences on a five-point scale. The randomized a-b pairs appeared on separate pages in the first half of the booklet, while the c-d pairs appeared in the same sequence in the second half of the booklet. Frequency judgements were given by 191 subjects and acceptability judgements by 142 subjects.[1]

A section is devoted to each group of sentences. At the beginning of the section we list the sentences and the means for the frequency and acceptability judgements.

For the sets of individual judgements we computed the degree of similarity and dissimilarity between the sentences in each group, both for frequency and acceptability judgements. The procedure used was Ward's

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method for clustering (Ward 1963), which yields a hierarchy of clustering, combining units in the order of least dissimilarity. Below the list of sentences we give clusterings resulting from the application of Ward's method: the penultimate clustering that divides the sentences into two clusters and one or more preceding clusterings.[2] Unless otherwise stated, the clusterings were identical for the frequency and acceptability judgements.

Appendix I lists correlations for the sentences within a pair using Goodman's Gamma as the correlation measurement. In general, there is a strong negative correlation between the frequency judgements on the two sentences within a pair, but there is no correlation between the acceptability judgements. This difference is surprising, especially in view of the recent emphasis on the systematic patterning of acceptability judgements (cf. Bailey 1973). Appendix II lists the frequencies for the raw scores of the two types of judgements.

I: ACTIVE/PASSIVE

		Means	
		Frequency	Acceptability
1a	Marvin saw Susan.	4.59	4.56
b	Susan was seen by Marvin.	1.76	2.90
c	Bruce called Jane.	4.71	4.63
d	Jane was called by Bruce.	1.88	2.72
2a	Did Marvin see Susan?	4.65	4.48
b	Was Susan seen by Marvin?	1.79	2.72
c	Did Bruce call Jane?	4.64	4.67
d	Was Jane called by Bruce?	1.87	2.62
3a	Peter can watch the game.	4.62	4.48
b	The game can be watched by Peter.	1.59	2.51
c	Carol can read the book.	4.57	4.53
d	The book can be read by Carol.	1.93	2.70

Final clustering: 1a 1c 2a 2c 3a 3c - active
1b 1d 2b 2d 3b 3d - passive

Discussion

It was hypothesized that active sentences would be judged to be both more frequent and more acceptable than passive sentences. The results clearly support the hypothesis for all the three sentence forms included in the experiments:

1 - declarative non-modal sentence
2 - interrogative sentence
3 - declarative modal sentence

The results were very similar for all three forms.

The interrogative sentences were tested at the suggestion of M.A.K. Halliday (private communication), to determine whether the active-passive proportion in frequency was the same for declarative and interrogative sentences. Perhaps a difference would have emerged if the focus had been on the declarative-interrogative contrast rather than on the active-passive contrast; that is to say, if subjects had been asked to judge pairs such as

Marvin saw Susan.
Did Marvin see Susan?

Susan was seen by Marvin.
Was Susan seen by Marvin?

But perhaps, even so, differences would not have emerged, since the frequency difference between declarative and interrogative sentences may not be sufficiently great to be perceived (cf. Greenbaum 1975, 8). The declarative sentences with modal auxiliaries were included because a corpus study had shown that a positive correlation existed between passives and such sentences (Svartvik 1966, 49, 71). Again, perhaps the relative infrequency of modals is not sufficient to outweigh the generalized 'felt preponderance' (Watt 1970, 62) of actives over passives.

II: MAY (NOT)/MIGHT (NOT)

		Means	
		Frequency	Acceptability
4a	I may be ready before you.	2.92	3.77
b	I might be ready before you.	3.69	3.73
c	She may be their teacher.	3.15	3.87
d	She might be their teacher.	3.73	3.85
5a	I may not be ready before you.	2.93	3.64
b	I might not be ready before you.	3.53	3.65
c	She may not be their teacher.	3.15	3.86
d	She might not be their teacher.	3.63	3.65

Final clustering: 4a 4c 5a 5c - may (not)
4b 5b 4d 5d - might (not)

Discussion

It has been asserted (Leech 1971, 88) that in American English may not is little used in the sense of 'possibility', might not being preferred. In earlier experiments we had failed to find evidence in support of that assertion (Greenbaum 1974). Subjects in those experiments were asked to negate a sentence with may; the favored response (82%) was may not. This was interpreted as indicating that most subjects were happy with the form may not, since they did not balk at producing it. The same subjects were asked to rate the acceptability of sentences with may, may not, might, and might not, and also to state their preferences for the pair of sentences with may and might and for the pair with may not and might not. There was virtually no difference in the acceptability raings of the four sentences, while preferences were equally divided in the preference ranking.

However, it might be objected that those experiments did not bear directly on relative frequency, since acceptability is not identical with frequency or even with felt frequency. We therefore decided to elicit judgements on the relative frequency of sentences with these modals.

In the present set of experiments, sentences with might tended to attract higher frequency rankings than those with may, regardless of whether the sentences were positive or negative. There was no such tendency for acceptability judgements. For both types of judgements, the clustering method sharply distinguishes between the results for may and may not, on the one hand, and for might and might not, on the other.

The results indicate that might not is felt to be more frequent than may not, parallel to the frequency usage difference that Leech has noted. But (1) this difference applies to the positive as well, and (2) we can hardly say that the may sentences are felt to be very infrequent. The acceptability ratings corroborate the findings in the previous experiment.

III: PERFECT/PAST

		Means	
		Frequency	Acceptability
6a	He has spoken to me several times since he came here.	3.50	4.04
b	He spoke to me several times since he came here.	3.32	3.23
c	She has written to us a number of times since she moved to London.	3.94	4.30
d	She wrote to us a number of times since she moved to London.	3.15	3.22
7a	He has been sick ever since he left school.	3.64	4.25
b	He was sick ever since he left school.	3.01	3.01
c	She has been happy ever since she married Bob.	4.14	4.43
d	She was happy ever since she married Bob.	2.56	2.59

Final clustering: 6a 6c 7a 7c - Perfect
6b 6d 7b 7d - Past

Discussion

It has been pointed out (cf. Vanneck 1958; Leech 1971, 38; Quirk and Greenbaum 1973, 3.30 Note) that there is some tendency in American English to use the present perfect interchangeably with the simple past; for example, to say I just saw him as well as I've just seen him. This has been noticed for the use of the past with adverbs such as just, already, and yet. It was hypothesized that the simple past would be more frequent--and perhaps even more acceptable--when the reference was to a series of actions (6b, 6d) rather than to a state that existed throughout the previous period (7b, 7d). The means for frequency and acceptability judgements for 6b and 6d, when contrasted with those for 7b and 7d, reflect such a difference to some extent. The frequency rating for 6b is in fact not much less than for 6a. The present perfect elicited much higher acceptability ratings and a much greater difference between acceptability and frequency ratings. This is understandable if the acceptability ratings tend to assume a more formal context, since it is likely that the test situation suggests a more formal context. The use of the past instead of the present perfect is probably more common in informal contexts.

IV: INDICATIVE/SUBJUNCTIVE/SHOULD

		Means	
		Frequency	Acceptability
8a	We recommend that he pays full tuition.	3.20	3.21
b	We recommend that he pay full tuition.	3.62	4.09
c	We urge that he gives his reasons.	2.86	2.82
d	We urge that he give his reasons.	3.67	4.17
9a	We recommend that he pay full tuition.	3.62	4.16
b	We recommend that he should pay full tuition.	3.14	3.38
c	We urge that he give his reasons.	3.85	4.12
d	We urge that he should give his reasons.	2.76	3.09

		Means	
		Frequency	Acceptability
10a	They demand that she reports all the facts.	3.02	2.91
b	They demand that she report all the facts.	3.68	4.04
c	They insist that she leaves the country.	2.84	2.96
d	They insist that she leave the country.	3.88	4.24
11a	They demand that she report all the facts.	3.66	4.04
b	They demand that she should report all the facts.	2.87	3.11
c	They insist that she leave the country.	4.01	4.32
d	They insist that she should leave the country.	2.79	3.23

Final clusterings:
- 8a 8c 10a 10c - indicative
- 8b 8d 9a 9c 10b 10d 11a 11c - subjunctive
- 9b 11b 9d 11d - SHOULD

- 8a 8c 9b 9d 10a 10c 11b 11d - indicative + SHOULD
- 8b 8d 9a 9c 10b 10d 11a 11c - subjunctive

Discussion

We have suggested that the use of subjunctive in certain subordinate clauses is more common in American English than in British English, though we did not know its relative frequency over other stylistic options (Quirk et al. 1972, 3.16). The subjunctive is optional when the main clause contains, for example, expressions of recommendation and demand. We wished to ascertain the relative frequency of the subjunctive over the indicative and *should* + infinitive. We expected that the subjunctive would be more frequent when the main clause contained verbs that were semantically closer to commands (*demand*, *insist*) than when it contained verbs that suggested persuasion (*recommend*, *urge*). The sentence pairs therefore contrast the subjunctive with the indicative and with *should* + infinitive respectively.

The results show, surprisingly, that the subjunctive is felt to be more frequent than either of the other two options and furthermore that it is regarded as the most acceptable form. However, the semantic distinction

V: RELATIVE POSITIONS OF ADVERBIALS

		Means	
		Frequency	Acceptability
12a	We were waiting for three hours on Monday.	4.07	4.11
b	We were waiting on Monday for three hours.	2.54	3.27
c	They played tennis for twenty minutes yesterday evening.	3.69	4.05
d	They played tennis yesterday evening for twenty minutes.	3.25	3.66
13a	She goes swimming every afternoon for a few minutes.	3.15	3.80
b	She goes swimming for a few minutes every afternoon.	3.54	3.90
c	He has been staying with us every year for a week.	3.09	3.55
d	He has been staying with us for a week every year.	3.50	3.90
14a	I go there about three or four times during the vacation.	3.97	4.14
b	I go there during the vacation about three or four times.	2.41	3.05
c	Our electricity was cut off several times two months ago.	4.07	4.03
d	Our electricity was cut off two months ago several times.	2.32	2.83
15a	He was working before dinner in the garage.	2.41	3.03
b	He was working in the garage before dinner.	4.16	4.29
c	I eat my lunch on Wednesdays at the office.	2.57	3.21
d	I eat my lunch at the office on Wednesdays.	4.21	4.24
16a	He is lecturing in the next building after lunch.	3.87	4.08
b	He is lecturing after lunch in the next building.	3.07	3.45
c	They sell beer at the student cafeterias every day.	3.56	3.93
d	They sell beer every day at the student cafeterias.	3.50	4.06
17a	I spoke to him about three or four times last week.	4.07	4.12
b	I spoke to him last week about three or four times.	2.81	3.42
c	They came to our meetings on several occasions last year.	3.22	3.66
d	They came to our meetings last year on several occasions.	3.71	4.02

Final clusterings:

Frequency: 12a 12c 12i 13b 13d 14a 14c 15b 15d 16a 16b 16c 16d 17a 17c
12b 13a 13c 14b 14d 15a 15c 17b 17d

Acceptability: 12a 12c 12i 13a 13b 13d 14a 14c 15b 15d 16a 16c 16d 17a 17c 17d
12b 13c 14b 14d 15a 15c 16b 17b

Discussion

We have stated that the normal relative positions of time adjuncts follow the order

time duration - time frequency - time when

and that place adjuncts tend to precede time adjuncts. Sometimes conflicting with these order relations is the principle that longer adjuncts tend to follow shorter adjuncts (Quirk et al. 1972, 8.70, 8.77). The pairs of sentences were constructed to provide evidence for perceptions of the normal positions:

12a + 12c: time duration + time when

13b + 13d: time duration + time frequency

14a + 14c: time frequency + time when

15b + 15d: place + time when

For sets 16 and 17 the adjunct that normally comes first was longer than the other adjunct:

16a + 16c: place (longer) + time

17a + 17c: time frequency (longer) + time when

If we look first at the means of the frequency judgements for sets 12-15, we see that a clear distinction emerges between the sentences assumed to have their adjuncts in normal positions and the others. We have there-

fore found that the perceptions of the normal positions conform to what we had expected.

The situation is less clear in sets 16 and 17, where there is a conflict between the normal positions and the relative length of the two adjuncts. Distinctions may be less clear-cut because the differences in the lengths of the two adjuncts is not very great and varies from pair to pair. 16a represents the normal or unmarked positions of place + time, while 16b represents the marked but length-affected positions. However, higher frequency and acceptability ratings were elicited for 16a, presumably because the small difference in the length of the adjuncts was not sufficient to reverse the relative ratings. Even so, there are greater differences in the parallel pairs in set 15, so length seems to have had some effect. On the other hand, in the second pair in set 16 the somewhat longer place adjunct (at the student cafeterias compared with in the next building in the first pair) appears to have had a greater neutralizing effect on the attraction of the two possible orders: there is little difference in either frequency or acceptability means. The results for 17a and 17b can be explained in the same way: the effect of the longer adjunct about three or four times has been to increase the frequency and acceptability ratings for the marked order in 17b, time when + time frequency, though it appears not to have affected the ratings for the unmarked order in 17a (cf. set 14). It is not clear, however, why 17c (unmarked order but with longer first adjunct) should elicit so much lower ratings than 17a, where the length of the time frequency adjunct is approximately the same. Perhaps the difference lies in the fact that the words in the second pair, on several occasions, are polysyllabic (cf. about three or four times in the first pair), which adds to the 'weight' of the longer adjunct.

The clustering into two groups is similar for the frequency and acceptability scores. In both cases the higher-score cluster contains all sentences with the unmarked order and two of the four marked but length-affected orders. (A different two are included in each of the clusterings.) In addition, 12d is included in the higher-score cluster for both frequency and acceptability and 13a for acceptability only. We have no explanation for the difference between them and other low-score sentences.

VI: NEGATIVE CONTRACTIONS

		Means	
		Frequency	Acceptability
18a	They've not had that brand for years.	1.91	2.78
b	They haven't had that brand for years.	4.48	4.42
c	They've not heard what happened.	2.08	2.99
d	They haven't heard what happened.	4.23	4.33
19a	He's not here.	4.20	4.12
b	He isn't here.	3.51	4.12
c	She's not outside.	4.20	4.04
d	She isn't outside.	3.29	3.96
20a	Pete's not here.	4.13	4.02
b	Pete isn't here.	3.43	4.14
c	Kate's not outside.	4.01	3.88
d	Kate isn't outside.	3.25	3.98
21a	We're not going.	4.11	4.30
b	We aren't going.	3.37	3.67
c	We're not playing.	4.13	4.18
d	We aren't playing.	3.26	3.83

Final clusterings:

Frequency:
{18a 18c
18b 18d 19a 19c 20a 20c 21a 20c
19b 19d 20b 20d 21b 21d

{18a 18c 19b 19d 20b 20d 21b 21d
18b 18d 19a 19c 20a 20c 21a 21c

Acceptability:
{18a 18c
18b 18d 19b 19d 20b 20d 21b 21d
19a 19c 20a 20c 21a 21c

{18a 18c
18b 18d 19a 19b 19c 19d 20a 20b 20c 20d 21a 21b 21c 21d

Discussion

The inclusion of these sentences was suggested by the work of Labov on contraction and deletion of the copula in Black English and white working-class vernaculars (Labov 1972, 65-129). Labov's data showed that for the white speakers contraction of *is* was most favored after a pronoun subject (as in set 19) and less favored after a noun phrase ending in a voiceless consonant (such as *Pete* and *Kate* in set 20). Sets 19 and 20 were intended to determine whether attitudes on frequency and acceptability followed the same distinction. Subjects were offered the alternatives of contraction of *is* and contraction of *not*. There was some tendency to reduce the ratings when the subject was a noun phrase and *is* was contracted (cf. means for sets 19 and 20), and indeed the acceptability ratings for uncontracted *is* after the noun phrase are higher than for the contracted form.

Labov indicates that similar phonological rules operate for the contraction or (in the case of Black English) deletion of *have* and *are*. Sets 18 and 21 offer the alternatives of a contracted *have* and *are* respectively as opposed to contracted *not*. Contraction of *are* is favored over the contraction of *not* (set 21). However, *haven't* is decisively favored over the contracted form *They've* (set 18). Labov's tentative statement (Labov 1972, 121) that [v] favors deletion more than [z] is not confirmed by our data. The clustering clearly separates the sentences with contracted *have* (18a, 18c) from the rest.[3]

We should point out that our data and Labov's data are not strictly comparable, because (1) he has elicited usage in casual speech, while we have elicited attitudes; (2) his subjects were black speakers and working-class white speakers, while our subjects were predominantly white undergraduates, with a higher educational level and probably mainly middle-class;

(3) the alternative contraction of not may have introduced another factor affected by different phonological rules. However, there are sufficient similarities in the results for is and are to require some explanation for the radically different results for have. We have no explanation to offer at this stage.

VII: ELLIPSIS

		Means	
		Frequency	Acceptability
22a	Some students have complained to the Chairman and they have written to the Dean.	2.91	3.36
b	Some students have complained to the Chairman and written to the Dean.	3.58	3.71
c	Our children will see the movie and they will visit the zoo.	2.61	3.29
d	Our children will see the movie and visit the zoo.	4.05	4.04
23a	Some students have complained to the Chairman and others have written to the Dean.	4.00	4.33
b	Some students have complained to the Chairman and others written to the Dean.	2.50	2.86
c	Our children will see the movie and the other children will visit the zoo.	3.90	4.26
d	Our children will see the movie and the other children visit the zoo.	2.61	2.93

Final clustering: 22a 22c 23b 23d
22b 22d 23a 23c

Discussion

We have stated (Quirk et al. 1972, 9.68): 'If both subject and auxiliaries are identical, it is normal for both to be ellipted'. We wished to confirm this for set 22, and also to find out whether ellipsis is normal if the auxiliaries alone were identical but the subjects were different (set 23). Our hypothesis was that ellipsis is not normal in the latter situation. The results showed that our intuitions were shared by our

subjects. The norm is felt to be:

(1) ellipsis if subjects and auxiliaries are both identical[4]

(2) no ellipsis if auxiliaries and identical but subjects are different

VIII: INDIRECT OBJECT

		Means	
		Frequency	Acceptability
24a	Tom gave the boy a dime.	4.09	4.33
b	Tom gave a dime to the boy.	2.91	3.67
c	John lent the girl a book.	3.64	3.78
d	John lent a book to the girl.	3.17	3.76
25a	Tom gave a boy the dime.	3.14	3.55
b	Tom gave the dime to a boy.	3.49	3.86
c	John lent a girl the book.	2.99	3.26
d	John lent the book to a girl.	3.72	4.09

Final clustering: 24a 24c 25a 25c - indirect object constructions
24b 24d 25b 25d - to constructions

Discussion

We have asserted (Quirk et al. 1972, 14.3, 14.5) that focus indicates where new information lies and that the neutral position of focus is at the end of a clause. We might therefore expect that the focus will be placed by a reader at the end of a clause unless there is some clue that the end of the clause contains given information. One such clue is the use of anaphoric the at end position, which implies a previous mention of what the noun phrase refers to, as opposed to the indefinite article, which implies that new information is being offered. We may therefore assume that the end of the clause will be interpreted as containing new information in 24a, 24c, 25b, and 25d. We expected that the indirect object constructions in 24a and 24c would be favored over the equivalent to constructions, whereas

the to constructions in 25b and 25d would be favored over the equivalent indirect object constructions. The expectation is confirmed in the means for the two types of judgements, though the margin is slight in the acceptability ratings for 24c and 24d.

The clusterings, however, show that the indirect object constructions were generally treated differently from the to constructions, regardless of whether the final noun phrase was definite or indefinite. More detailed analysis of the data is required to ascertain how the results of the clusterings are to be reconciled with the distinctions that emerge from a scanning of the means.

APPENDIX I

CORRELATIONS BETWEEN SENTENCES IN A PAIR

- USING GOODMAN'S GAMMA

Pair	Frequency	Acceptability	Pair	Frequency	Acceptability
1ab	-.446	-.045	1cd	-.552	-.184
2ab	-.554	.007	2cd	-.500	-.257
3ab	-.303	-.150	3cd	-.453	.018
4ab	-.558	-.210	4cd	-.595	-.068
5ab	-.575	-.101	5cd	-.618	-.072
6ab	-.610	-.180	6cd	-.417	-.141
7ab	-.585	-.086	7cd	-.524	-.187
8ab	-.572	-.290	8cd	-.548	-.292
9ab	-.648	-.039	9cd	-.625	-.210
10ab	-.539	-.341	10cd	-.604	-.267
11ab	-.490	-.050	11cd	-.460	-.017
12ab	-.617	.160	12cd	-.369	.108
13ab	-.472	-.036	13cd	-.620	-.414
14ab	-.454	-.252	14cd	-.559	-.192
15ab	-.532	-.201	15cd	-.537	-.170
16ab	-.558	-.131	16cd	-.423	.061
17ab	-.412	-.103	17cd	-.509	.035
18ab	-.465	-.233	18cd	-.613	.026
19ab	-.300	.394	19cd	-.239	.033
20ab	-.314	.266	20cd	-.373	.088
21ab	-.239	.210	21cd	-.319	.174
22ab	-.614	-.353	22cd	-.410	-.165
23ab	-.542	-.209	23cd	-.612	-.207
24ab	-.419	.102	24cd	-.546	-.096
25ab	-.568	-.076	25cd	-.622	-.087

APPENDIX II

FREQUENCIES FOR RAW SCORES

	Frequency					Acceptability				
	1	2	3	4	5	1	2	3	4	5
1a		4	7	53	127	1	4	6	35	96
b	90	72	18	6	5	24	40	25	28	23
c	1	1	1	46	138		3	6	30	99
d	81	64	30	7	5	26	38	36	21	16
2a	1	1	6	47	135	1	7	8	33	92
b	8	67	26	5	4	28	44	30	15	23
c	1	1	6	49	131	1	2	3	29	100
d	92	54	25	8	9	32	41	25	16	19
3a	2	3	4	47	134	2	3	10	36	90
b	106	64	12	5	2	31	46	35	14	13
c	1	1	10	55	124		5	6	35	87
d	79	69	31	8	6	22	52	20	19	19
4a	22	61	41	42	24	5	23	19	45	48
b	10	29	25	71	55	4	24	25	41	47
c	14	46	56	45	29	7	14	16	52	47
d	8	20	35	79	48	5	14	29	39	51
5a	21	52	54	41	20	9	25	21	38	47
b	17	25	28	77	41	8	22	29	35	47
c	13	46	51	55	23	8	16	15	48	51
d	12	23	36	69	48	5	26	26	35	45
6a	14	28	43	61	45	5	15	19	40	63
b	15	40	38	64	34	14	29	30	39	29
c	3	14	39	64	65		11	13	38	76
d	15	50	44	45	31	15	30	32	30	30
7a	10	27	31	76	47	4	9	11	40	76
b	20	59	38	47	27	19	39	30	23	28
c	2	9	29	70	80	2	4	8	43	81
d	44	58	43	27	18	31	42	32	16	16
8a	23	44	34	51	39	11	30	41	34	24
b	6	31	42	61	50	5	14	14	39	69
c	27	53	46	41	20	27	33	32	21	21
d	11	20	33	78	45	4	9	13	43	66
9a	7	30	34	78	42	2	12	12	48	65
b	15	51	43	57	25	7	29	35	42	27
c	8	17	27	80	56	3	10	19	43	64
d	22	66	49	37	14	20	30	31	32	25
10a	23	46	46	56	20	17	44	33	27	19
b	6	25	46	60	53	6	8	20	47	60
c	26	58	44	44	18	21	33	33	26	22
d	5	16	36	72	61	7	6	11	36	76
11a	11	21	39	71	49	4	13	15	51	59
b	21	60	47	49	14	11	39	36	34	21
c	5	14	22	82	66		5	17	43	71
d	19	72	50	25	23	9	31	41	28	26
12a	5	12	18	86	70	3	13	14	45	64
b	35	74	39	29	14	11	30	37	34	28
c	10	26	23	83	47	3	10	19	49	55
d	9	54	39	35	32	4	25	32	28	48

	Frequency					Acceptability				
	1	2	3	4	5	1	2	3	4	5
13a	19	43	42	64	23	3	18	29	42	46
b	8	33	43	65	44	5	16	16	53	48
c	32	41	28	55	34	18	27	19	36	38
d	12	35	36	60	47	8	13	26	29	63
14a	8	15	19	80	68	2	11	16	48	63
b	42	74	36	27	10	11	39	38	38	15
c	8	10	13	86	70	5	15	14	39	63
d	52	67	36	17	14	23	36	36	25	17
15a	43	76	33	23	14	17	36	36	28	23
b	5	10	17	75	83		10	13	44	74
c	39	62	43	27	16		33	34	28	29
d	2	10	19	71	85		6	10	42	73
16a	4	23	29	71	63	2	13	21	40	64
b	13	52	59	42	25	9	26	34	36	36
c	11	26	43	66	44	3	14	28	35	55
d	8	36	47	51	48	4	12	17	42	61
17a	7	11	16	85	72	7	8	14	44	68
b	26	55	58	33	19	9	30	32	34	37
c	8	24	37	64	55	3	9	26	41	56
d	10	53	43	49	33	6	24	24	36	44
18a	70	83	22	8	4	25	43	31	18	22
b	2	3	8	66	112	1	7	7	42	83
c	65	72	29	18	5	16	42	33	20	76
d	4	10	15	70	90	2	7	8	46	73
19a	7	11	25	40	106	6	12	12	38	71
b	12	32	43	53	50	4	13	14	37	69
c	3	11	22	63	90	5	14	18	37	66
d	16	38	49	48	38	6	15	18	39	61
20a	6	15	23	51	95	7	14	13	42	65
b	16	32	43	53	46	4	13	17	32	74
c	6	13	28	66	74	9	16	17	31	60
d	17	34	55	48	33	4	15	19	39	58
21a	8	11	29	47	96	4	7	12	38	80
b	19	32	44	51	45	15	17	23	29	56
c	4	11	28	60	86	5	13	11	32	77
d	13	41	56	42	37	9	20	18	31	61
22a	28	51	41	48	21	7	36	27	37	31
b	15	23	41	57	53	8	25	19	35	52
c	31	73	44	24	18	7	35	36	28	30
d	2	10	25	93	60	6	11	16	41	61
23a	4	13	23	89	61	1	8	12	41	77
b	38	64	47	35	5	23	36	35	26	18
c	5	19	28	76	62	4	7	14	37	76
d	32	65	52	28	13	23	31	34	30	19
24a	3	10	26	76	72	3	10	8	34	82
b	17	60	52	39	19	7	26	20	38	47
c	10	26	35	67	50	7	18	20	42	47
d	15	45	51	47	30	8	20	16	43	48
25a	28	37	42	43	38	8	35	15	32	47
b	9	37	39	61	43	3	19	21	47	48
c	22	54	39	54	21	13	31	35	25	34
d	9	23	37	65	56	7	10	10	46	64

NOTES

[1]For further details on the subjects and on the procedures, see Report 1. The experiments discussed here are designated there 1a and 2a for Scale Frequency judgements (the results of which have been conflated) and 2b for Acceptability judgements. I am indebted to Professor Robert Remstad of the Department of Educational Psychology at the University of Wisconsin-Milwaukee for advice on statistics and to Paul Keuler of the Social Science Research Facility of the College of Letters and Science for computational work. The research was supported by grants from the College of Letters and Science and from the Graduate School. This paper is a slightly revised version of the paper mimeographed in August 1975.

[2]Preceding clusterings are given if they make interesting linguistic distinctions or if the combination error for the penultimate clustering was very much greater than preceding errors. In all cases there was a very large jump from the error for the penultimate clustering to the error for the combination forcing all the sentences into one cluster.

[3]There is a large jump in the combination error when the three clusters are combined into two, particularly for the frequency judgements.

[4]The somewhat lower frequency and acceptability ratings for 22b as compared with 22d is perhaps due to the improbability of sentence 22b. The mention of a written communication may have seemed an inappropriate sequence to the mention of a complaint. The written communication is presumably also interpreted as a complaint, while the complaint in the first part of the sentence is presumably oral. In the context of this sentence written would more appropriately have been preceded by spoken, or else the verb complain should have been used for both parts.

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